Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.(Currently amended) A nanocomposite optical plastic article, comprising:

a plastic host material having a refractive index $n_{plastic\ host}$ and a temperature sensitive optical vector $x = dn_{plastic\ host}/dT$;

a ~~core-shell nanoparticulate~~ core-shell nano-sized particulate material having a refractive index $n_{particulate}$ and having a temperature sensitive optical vector $x_p = dn_{particulate}/dT$ wherein the temperature sensitive optical vector x_p of the core-shell nano-sized composite particulate is directionally opposed to temperature sensitive optical vector x of the plastic host material is dispersed into said plastic host material, said core-shell nano-sized particulate ~~core shell nanoparticulate~~ material having a core material with a refractive index n_{core} ~~defined by a nanoparticulate material having a temperature sensitive optical vector x_1~~, and a shell material having a refractive index n_{shell}, wherein the refractive index n_{shell} is lower than the refractive indices of both the host material, $n_{plastic\ host}$, and the core material, n_{core}. ~~defined by a coating material layer coated onto said core, said shell having a temperature sensitive optical vector x_2 and wherein said temperature sensitive optical vector x_1 is directionally opposed to said temperature sensitive optical vector x of said plastic host material.~~

2. (Currently amended) The ~~method~~ nanocomposite optical plastic article as recited in claim 1, ~~wherein the steps of providing a nanoparticulate material and coating said nanoparticulate material further include the step of selecting said nanoparticulate material and coating material layer such that said temperature sensitive optical vector x is defined as an index of refraction $n_{plastic\ host}$, said temperature sensitive optical vector x_1 is defined as an index of refraction n_{core}, and wherein said temperature sensitive optical vector x_2 is defined as an index of refraction n_{shell}, wherein~~ the optical vector of said plastic host material x and the optical vector of said core-shell nano-sized composite particulate x_p are opposite in sign and additionally the refractive index of said shell material n_{shell} is less than the refractive indices of both said core material n_{core} and said plastic host material $n_{host\_plastic}$ material so that $n_{shell} < n_{plastic\ host} < n_{core}$.

3. (Currently amended) A nanocomposite optical plastic article as ~~The method~~ recited in claim 1 wherein ~~said step of dispersing further includes evenly dispersing said core shell nanoparticulate material throughout~~ said plastic host material is polymethylmethacrylate ~~host material~~.

4. (Currently amended) A nanocomposite optical plastic article as ~~The method~~ recited in claim 1 wherein ~~said step of coating said nanoparticulate material further includes the step of requiring~~ said temperature sensitive optical vector of said shell material $x_{shell} = dn_{shell}/dT$ ~~x2 of said coating material layer to be~~ is directionally opposed to said temperature sensitive optical vector x of said host material wherein said host material is a polymethylmethacrylate host material.

5. (Currently amended) A nanocomposite optical plastic article as ~~The method~~ recited in claim 1 wherein said core material of said core-shell nano-sized composite particulate material ~~step of providing a nanoparticulate material further comprises the step of selecting a nanoparticulate material from~~ is selected from the group consisting of: silica nanoparticles, magnesium oxide nanoparticles, zinc sulfide nanoparticles, zinc selenide, and cadmium sulfide.

6. (Currently amended) A nanocomposite optical plastic article as ~~The method~~ recited in claim 5 wherein said ~~step of selecting a nanoparticulate material further comprises selecting a nanoparticulate material having~~ core material of said core-shell nano-sized composite particulate material has a particle size of about 15nm.

7. (Currently amended) A nanocomposite optical plastic article as ~~The method~~ recited in claim 5 wherein said core material of said core-shell nano-sized composite particulate material ~~step of selecting a nanoparticulate material includes the step of selecting a nanoparticulate material having~~ has a particle size less than about 50nm.

8. (Currently amended) A nanocomposite optical plastic article as ~~The method~~ recited in claim 5 wherein core material of said core-shell nano-sized composite particulate material ~~said step of selecting a nanoparticulate~~

~~material includes the step of selecting a nanoparticulate material having~~ has a particle size less than about 20 nm.

9. (Currently amended) A nanocomposite optical plastic article as ~~The method~~ recited in claim 1 wherein said ~~step of coating said nanoparticulate material~~ shell material comprises ~~the step of selecting a coating layer from materials comprising any~~ a coated layer of any non-absorbing, low refractive index material.

10. (Currently amended) A nanocomposite optical plastic article as ~~The method~~ recited in claim 9 wherein said ~~step of selecting a coating~~ coated layer ~~further includes the step of selecting a material~~ is selected from the group consisting of: amorphous silica, fluoropolymer, magnesium fluoride, and silsequi~~n~~oxane materials.

11. (Currently amended) A nanocomposite optical plastic article as ~~The method~~ recited in claim 1 wherein said ~~step of coating said nanoparticulate~~ shell material ~~comprises the step of selecting a coating material layer comprising~~ further comprises a coated layer of silica ~~coating layer~~.

12. (Currently amended) A nanocomposite optical plastic article as ~~The method~~ recited in claim 11 wherein said core material of said core-shell nano-sized composite particulate material ~~step of selecting a coating material layer~~ further comprises a core material with a coated shell ~~the step of applying said coating material layer onto said nanoparticulate material to~~ having a thickness in the range of about 5nm to about 17nm.

13. (Currently amended) A nanocomposite optical plastic article as ~~The method~~ recited in claim 1 wherein said core material of said core-shell nano-sized composite particulate material ~~step of coating said nanoparticulate material~~ wherein said shell further comprises ~~the step of selecting a coating material layer comprising~~ a magnesium fluoride coating layer.

14. (Currently amended) A nanocomposite optical plastic article as ~~The method~~ recited in claim 1 wherein said core material of core material of said core-shell nano-sized composite particulate material ~~step of providing a nanoparticulate material~~ further comprises ~~the step of selecting a~~

~~nanoparticulate~~ a material selected from the group consisting of: potassium titano phosphate, aluminum oxide, magnesium aluminate, yttrium oxide, and calcium carbonate.

15. (Cancelled)

16.(Cancelled)

17.(New) A nanocomposite optical plastic article as claimed in claim 1 wherein the core-shell nano-sized composite particulate material can withstand a volume loading of greater than 10%.

18. (New) A nanocomposite optical plastic article as claimed in claim 1 the nanocomposite optical plastic article further comprising a haze of less than 10%.

19. (New) A nanocomposite optical plastic article as claimed in claim 1 the nanocomposite optical plastic article further comprising a dn/dT of less than
–80E-6/C.